

WHAT IS CLAIMED IS:

1. A method for checking signal transmission quality of a circuit board, comprising steps of:
 - outputting a source signal from a first device to a second device via a trace on said circuit board;
 - adopting said source signal transmitted through said trace as a test signal;
 - comparing said test signal with a first reference signal at a plurality of time points to obtain a plurality of comparison results; and
 - determining the signal transmission quality of said circuit board according to said plurality of comparison results.
2. The method according to claim 1 wherein said first and said second devices are chips mounted on said circuit board and communicating with each other via said trace.
3. The method according to claim 1 wherein said first reference signal has a first constant level, and levels of said test signal at said plurality of time points are compared with said first constant level to obtain said plurality of comparison results.
4. The method according to claim 3 wherein the signal transmission quality of said circuit board is determined according to a count of said plurality of comparison results complying with a predetermined result.
5. The method according to claim 4 wherein said predetermined result is that a level of said test signal at a certain time point during a toggling period is higher than said first constant level.
6. The method according to claim 5 further comprising a step of comparing said levels of said test signal at said plurality of time points during a toggling period with a second constant level lower than said first constant

level.

7. The method according to claim 6 wherein the signal transmission quality of said circuit board is determined according to a first count of said levels of said test signal higher than said first constant level and a second count of said levels of said test signal lower than said second constant level.
8. The method according to claim 7 further comprising a step of adjusting a slew rate of said test signal when said first and/or said second counts are within a predetermined range.
9. The method according to claim 4 wherein said predetermined result is that a level of said test signal at a certain time point during a toggling period is lower than said first constant level.
10. A method for checking signal transmission quality of a circuit board, comprising steps of:
 - outputting a source signal from a first device to a second device via a trace on said circuit board;
 - adopting said source signal transmitted through said trace as a test signal;
 - comparing said test signal with a first reference signal at a plurality of time points, and accumulatively counting to obtain a first counted value whenever the comparison result complies with a first predetermined result; and
 - determining the signal transmission quality of said circuit board according to said first counted value.
11. The method according to claim 10 further comprising a step of comparing said test signal with a second reference signal at said plurality of time points, and accumulatively counting to obtain a second counted value whenever the comparison result complies with a second predetermined result, and the signal transmission quality of said circuit board is

determined according to said first and said second counted values.

12. The method according to claim 11 wherein said first predetermined result is that a level of said test signal at a certain time point during a toggling period is higher than said first constant level, and said second predetermined result is that a level of said test signal at a certain time point during a toggling period is lower than said second constant level.
13. The method according to claim 11 further comprising a step of adjusting a slew rate of said test signal when said first and/or said second counted values are within a predetermined range.
14. A device for checking signal transmission quality of a circuit board, said circuit board communicating a source device and a destination device via a trace, and said device for checking signal transmission quality being arranged in said source device and comprising:
 - a first comparator electrically connected to said trace, and generating a first counting signal in response to a first comparison result of a test signal transmitted through said trace with a first reference signal;
 - a first counter electrically connected to said first comparator, and counting in response to said first counting signal to generate a first accumulatively counted value; and
 - a discriminator determining the signal transmission quality of said circuit board according to accumulatively counted value.
15. The device according to claim 14 further comprising a test signal generator for generating a source signal with toggling action, wherein said source signal is adopted as said test signal after being outputted from an output buffer of said source device, transmitted via said trace and reflected by said destination device.

16. The device according to claim 15 further comprising a slew-rate adjusting element electrically connected to said test signal generator and said discriminator for adjusting a slew rate of said test signal according to the signal transmission quality of said circuit board.
17. The device according to claim 16 wherein said slew-rate adjusting element is incorporated into said output buffer.
18. The device according to claim 14 wherein said source and said destination devices are chips.
19. The device according to claim 14 further comprising:
 - a second comparator electrically connected to said trace, and generating a second counting signal in response to a second comparison result of said test signal with a second reference signal; and
 - a second counter electrically connected to said second comparator, and counting in response to said second counting signal to generate a second accumulatively counted value for further reference of said discriminator to determine the signal transmission quality of said circuit board.
20. The device according to claim 19 wherein said first comparison result indicates that a level of said test signal is higher than a level of said first reference signal, and said second comparison result indicates that a level of said test signal is lower than a level of said second reference signal.
21. The device according to claim 19 further comprising:
 - a first register electrically connected between said first counter and said discriminator for storing said first accumulatively counted value and then transmitted said first accumulatively counted value to said discriminator; and
 - a second register electrically connected between said second counter and said discriminator for storing said second accumulatively counted value and

then transmitted said second accumulatively counted value to said discriminator.

22. The device according to claim 21 wherein said first and said second registers are disposed in a core logic unit of said source device.
23. The device according to claim 14 wherein said discriminator is comprised by a core logic unit of said source device.